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A STUDY OF FACTORS ASSOCIATED WITH OUTCOMES OF MDTA AGRICULTURAL EDUCATION PROJECTS IN THE SOMERSET AREA. FINAL REPORT.

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THREE MANPOWER DEVELOPMENT AND TRAINING ACT (MDTA) AGRICULTURAL EDUCATION COURSES WERE EVALUATED TO DETERMINE WHETHER THEY ARE A GOOD INVESTMENT FOR TRAINING FARM WORKERS TO PROFITABLY PROVIDE PRODUCTS FOR A DIVERSIFIED FARM MARKET. A SURVEY OF 233 ENROLLEES DURING TRAINING, AND EMPLOYMENT SERVICE FOLLOWUP RECORDS PROVIDED INFORMATION FOR PRE- AND POST-TRAINING COMPARISON. APPROXIMATELY 97 PERCENT OF FORMER GENERAL PROGRAM TRAINEES, 90 PERCENT OF THE FARM HAND PROGRAM TRAINEES, BUT ONLY 5 PERCENT OF THE GARDENER PROGRAM TRAINEES WERE EMPLOYED IN THE TYPE OF JOB FOR WHICH THEY WERE TRAINED. THE ANNUAL GROSS INCOME OF THE TRAINEES BEFORE ENTERING THE PROGRAM AVERAGED $700 AND THE WEIGHTED AVERAGE OF ALL INCOMES REPORTED BY EMPLOYED TRAINEES AFTER 3 MONTHS, 6 MONTHS, AND 1 YEAR WAS APPROXIMATELY $2,500 PER YEAR. AN INDEPTH ANALYSIS OF INTERVIEWS WITH 19 FARMER GENERAL TRAINEES INDICATED THAT THE COST OF MDTA FARMER GENERAL PROGRAM IS REALIZABLE WITHIN 3 YEARS OF THE TRAINING. CONCLUSIONS WERE THAT (1) MDTA FARMER GENERAL AND FARM HAND GENERAL COURSES ARE A GOOD EDUCATIONAL INVESTMENT, (2) MDTA FARMER GENERAL AND FARM HAND GENERAL COURSES WILL PROVIDE A DIRECT SOLUTION TO THE RURAL POVERTY AND AN INDIRECT SOLUTION TO THE URBAN POVERTY PROBLEMS, AND (3) MDTA FARMER GENERAL AND FARM HAND GENERAL COURSES WILL MAKE ADDITIONS TO THE ECONOMY OF KENTUCKY AND SUPPLY THE DEMANDS OF A DIVERSIFIED FARM MARKET. (DM)

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A STUDY OF FACTORS ASSOCIATED WITH OUTCOMES OF MDTA AGRICULTURAL EDUCATION PROJECTS IN THE SOMERSET AREA

Final Report
(Fourth Revision)

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Overview

Results of the analysis of 233 Employment Service Records show that the use of MDTA funds for Farmer General and Farm Hand General training was a good educational investment. However, the training did not solve all of the trainees' financial problems. Some of the trainees' net incomes had not risen above $3,000 by two years after the training.

Though both Farmer General and Farm Hand General courses are considered as being good educational investments, Farmer General training was the better investment of the two. Therefore, an in-depth analysis of interviews with 19 Farmer General trainees was performed. The in-depth analysis indicates that the cost of MDTA Farmer General training is realizable within three years after the training. Another financial benefit, which could not be computed, resulted from the Farmer General trainees' neighbors sharing in the knowledge that the trainee gained during the course. The farming practices that were correlated with higher incomes tended to be the practices that the trainees observed to be adopted by their neighbors.

Since the results of the study suggest that rural residents whose incomes are less than $3,000 can be trained so as to enable them to acquire a more adequate level of living, and since the training costs are realizable within three years after the training, additional MDTA Farmer General and Farm Hand General courses may be good investments. Furthermore, additional courses could help alleviate the rural poverty problem. Moreover, alleviation of the rural poverty problem would contribute indirectly to solution of the urban poverty problem by reducing the rate of migration of destitute small farm owners and operators to large cities.

Furthermore, it may be that a greater number of MDTA Farmer General and Farm Hand General trainees would obtain net incomes above the poverty level if a trainee who has had one course could have access to advanced or

continued training. The value of such additional training might be shown by experimental and demonstration projects that are designed for the purpose.

The results of the present study can be used by course planners and implementers. Course planners can obtain at least a crude evaluation of topics that could comprise a Farmer General course by examining the frequencies in Table 8. Course implementers can obtain information from other tables that would be useful for convincing trainees of the economic value of adopting certain activities and practices. One general finding in this regard was that there is a positive relationship between adoption of desirable farming practices and increase in net income.

Though the results of the present study can be of value to course planners and implementers, additional studies may be needed. If additional studies are needed, the procedures that were developed for the present study can be applied to other studies. In addition, if in-depth routine evaluations of MDTA agricultural education courses are needed, the procedures developed for the present study can be applied to them also.

I. INTRODUCTION

From 1950-60 there was a dramatic decline in the number of workers employed in farm occupations--a decline of 41 percent. The decline was part of a downward trend which has been observed since 1910. The decrease in farm employment underscores the fact of indisputable efficiency of American agriculture.[1]

Since there has been a mass exodus of manpower from farms, Harold Rosen in Manpower Supply in the United States has suggested that Vocational Educators have never squarely faced the issue. According to Rosen, the time has come for Vocational Education to take a closer look at economic and social changes and to bring about appropriate changes in both training programs and guidance services.

The above information and opinions may lead one to assume that manpower training occupations may not be sufficiently beneficial to either the trainees or to the economy to justify the expenditure of additional funds for some types of agricultural training.

On the other hand, in enacting recent legislation affecting manpower training and retraining, Congress recognized the continuation of the long-term decrease in farm employment, the increasing complexity of farm work, and the upturn in job opportunities in farm-related occupations. For example, the Manpower Development and Training Act of 1962 contains provisions which will enable adults and youths in rural areas to secure training to

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[1] U. S. Department of Labor, Manpower Report Number 3, September, 1962, p. 1.

better adapt themselves to changing occupational needs in both urban and rural jobs. Workers in families with less than $1,200 net family income are considered unemployed and thus are eligible for priority referral for training."[2]

Though the MDTA provides funds for agricultural education courses, how great is the need for such training? According to Governor Nunn, one of the greatest problems facing the farm today is the lack of highly specialized workers who can provide products for a diversified farm market.[3]

Are MDTA agricultural education courses good investments for producing farm workers who can profitably provide products for a diversified farm market? The following report is a study which was aimed at that question.

The following section of the report is limited to an analysis of characteristics, termination, and follow-up records that are on file in the Somerset Employment Service Office which pertain to 233 MDTA agricultural trainees.*

II. AN ANALYSIS OF SOMERSET EMPLOYMENT SERVICE OFFICE RECORDS

What are the Characteristics of a Typical Agriculture Training Program Trainee?

In Table 1 are listed certain characteristics of the 129 trainees in the Farmer General program, of the 48 in the Gardener program, and of

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[2] Ibid.

[3] "Nunn Says Farm Teamwork Needed," Lexington Leader, January 10, 1968.

*The investigators wish to express their appreciation to Mr. Hulon Wallace, Director of the Somerset Office, for making access to the records possible.

TABLE 1

TYPICAL TRAINEES IN THE THREE MDTA AGRICULTURAL PROGRAMS

CHARACTERISTICS	Type of Training Program		
	Farmer General	Gardener	Farm Hand General
Type of employment following training	Same as training	Related to but different from training	Same as training
Was employed for more than 15 hrs. per week	Yes	Yes	Yes
Works within 50 miles of pre-training residence	Yes	Yes	Yes
Hourly income of those employed	$1.50	$1.00	Less than $1.00
Age	45	43	41
Number years employed before training	More than 9 yrs.	Less than 9 years	About half more than 9 years About half less than 9 years
Highest school grade completed	7th grade	4th grade	5th grade
Had served in the armed forces	No	No	No
Was married and lived with family	Yes	Yes	Yes
Was family's primary wage earner	Yes	Yes	Yes
Number of dependents	4	3	4
Was willing or unwilling to leave area for employment	Unwilling	Unwilling	Willing

the 56 in the Farm Hand General program.

Did Trainees Find Employment upon Completion of Training?

Approximately 97% of the trainees in the Farmer General program were employed in the type of job which they were trained for as were approximately 90% of the trainees in the Farm Hand program. However, less than 5% of those who had been trained in the Gardener program had secured employment in the specific training category. Approximately half of the trainees in the Gardener program did secure employment that was in some way related to their training.

Of the three types of programs, those in the Gardener program reported the greatest degree of unemployment and did so in each of the three Employment Service follow-up reports which were done at 3 months, 6 months, and 1 year following the training respectively. On the average, about 15% of those trained in the Gardener program reported that they were unemployed.

Did the Trainees Income Rise upon Completion of the Training?

According to the three, six, and twelve month Employment Service follow-up reports, there was evidence that in general trainees benefitted financially from the training. According to an analysis of the records on the MDTA Farmer General class A-6140, the annual gross income of the trainees before entering the program averaged $700. The weighted average of all incomes reported by all employed trainees on all follow-up reports was approximately $2,500 per year.*

Reported incomes varied by the type of training program. The weighted average annual gross income for those who completed the Farmer

*Based on the trainee's statement of his hourly income during one reference week and based on a 2,000 hour year. Approximately six percent of the follow-up records were excluded from the computations.

General program was $2,965; that for those who completed the Gardener program was considerably below this, namely $2,270; and for those who completed the Farm Hand program was $1,910.

One would expect a gradual increase in income following the completion of the training. It is apparent in the following tabulation that the three, six, and twelve month follow-up report did not always support the expectation.

TABLE 2

WEIGHTED GROSS INCOME PER YEAR
(Employed Persons Only)

Type of Program	3 Month Follow-up	6 Month Follow-up	12 Month Follow-up
Farmer General	$2,940	$2,990	$2,980
Gardener	2,265	2,140	2,430
Farm Hand General	1,660	1,750	2,090

Would the Trainees be Willing to Accept Employment Outside the Area Served by the Somerset Employment Office?

Some of the data already collected on each trainee bore at least a logical relationship to whether or not he would be willing to change his employment or his place of residence. Although more than one third (35 percent) of the trainees had been away from the area for an extended period of time while in military service, fewer than three percent of them had migrated in excess of 50 miles to secure their post-training employment.

Of all types of trainees combined, 52 percent said they would be willing to accept a job outside the area, but trainees in the Farmer General program differed markedly in this respect from trainees in the other two types of programs.

Trainees in the Farmer General program were almost all resident

farmers who were as a group unwilling to accept any employment outside of the area. The difference is apparent in the following tabulation:

TABLE 3

WILLINGNESS TO OBTAIN EMPLOYMENT

Type of Program	Willing to Accept	Unwilling to Accept
Farm Hand General	98%	2%
Gardener	92%	8%
Farmer General	17%	83%

What Trainee Characteristics Were Related to Willingness to Accept Employment Outside of the Area?

The median number of persons dependent for support upon the Farmer General trainee was somewhat greater than the number dependent upon the two other trainee categories who were by comparison much more willing to leave the area. Thirty-nine percent of Farmer General trainees had in excess of four dependents as compared with 27 percent of Gardener trainees and 26 percent in Farm Hand General training.

Farmer General trainees tended to be older in years and to have more years of work experience prior to training than did trainees in the other two programs. The upper fifth in age distribution of all of the 233 trainees was over 53 years of age and the lower fifth was under 33. As the following tabulation shows, compared with the two other groups, a smaller portion of Farmer General trainees were in the lower age bracket and a larger percentage were in the upper age bracket.

The percentage of Farmer General trainees who had had in excess of nine years of work experience before taking the course was 88 percent. It exceeded by 38 percent of 50 percent of Farm Hand General trainees with

this much experience and by 53 percent the 35 percent of gardening trainees who had had that much experience.

TABLE 4

AGE BRACKET OF TRAINEES

Type of Training Program	Under 33 Years	Over 53 Years
Farm Hand General	33.9%	19.6%
Gardener	19.1%	17.0%
Farmer General	13.2%	22.5%

III. AN ANALYSIS OF INTERVIEWS WITH 19 FARMER GENERAL TRAINEES FROM WAYNE COUNTY HIGH DURING 1964-65

In preparation for this part of the study representatives of the Somerset Employment Service Office were interviewed. The representatives identified a Farmer General class that was completed in 1965 and identified activities that could be used as indicators of expected change in the trainee's behavior as result of having taken the course. In addition, the vocational educators who conducted the Farmer General course were interviewed. They identified activities that would be indicators of expected change in the trainee's behavior as result of having taken the course.

Following the interviews an interview schedule was constructed consisting of 55 items and the services of an interviewer were sought. An interviewer was obtained who was a vocational educator and who had a confidential relationship with the trainees. The interviewer conducted the interviews during the summer and fall of 1967. The interviews were completed by the end of the month of November.

What Changes Took Place in the Trainee's Net Income?

The trainees' average net income was $618 before the course; $1,421

the first year after the course; and $2,200 the second year after the course. From before the course through the second year after the course the increase in the trainee's net income per year ranged from $200 to $4,200. The net incomes and the changes are shown in the following table. The net incomes of the 19 trainees are listed in order of decreasing income prior to the course.

TABLE 5

PRE- AND POST-TRAINING NET INCOMES

Case	Before Course	First Year After	Increase First Year	Second Year After	Increase Second Year	Total Increase
1	$ 1,000	$ 1,200	$ 200	$ 1,500	$ 300	$ 500
2	1,000	1,200	200	1,200	000	200
3	900	3,400	2,500	4,400	1,000	3,500
4	800	2,300	1,500	5,000	2,700	4,200
5	800	1,200	400	1,200	000	400
6	800	1,600	800	3,200	1,600	2,400
7	800	1,400	600	2,300	900	1,500
8	600	800	200	1,500	700	900
9	600	800	200	4,600	3,800	4,000
10	600	1,000	400	1,000	000	400
11	550	1,200	650	2,500	1,300	1,950
12	500	800	300	1,200	400	700
13	500	2,500	2,000	2,000	500	1,500
14	500	1,200	700	1,500	300	1,000
15	500	600	100	1,200	600	700
16	500	1,000	500	1,500	500	1,000
17	500	1,000	500	1,100	100	600
18	300	800	500	900	100	600
19	000	3,000	3,000	4,000	1,000	4,000
TOTALS	$11,750	$27,000	$15,250	$41,800	$14,820	$30,050
AVERAGES	6.8	1,421	803	2,200	778	1,581

The average net income shown in Table 5 differ somewhat from the weighted average annual incomes that are presented in Table 2. The differences are accounted for in the fact that the weighted average income figures in Table 2 are based on gross incomes whereas the figures in Table 5 are

based on net incomes.

The post-training average net incomes should be compared to the expected incomes that were stated in the training objective. The training objective was to train subsistent farm owners and operators with net incomes of less than $1,200 per year, who have farms with production potential, in scientific farming methods as applied to diversified farming so as to increase the farm incomes by $1,200 by the end of the first calendar year after training and to $2,000 at the end of the third year after training. An analysis of the obtained net incomes of the 19 trainees shows that the course objective was almost reached by the end of the first year and was exceeded by the end of the second year. In addition, the trend of increase suggests that the objective will be exceeded by approximately $400 by the end of the third year after the training. Moreover, certain farm practices such as planting an orchard may have long-term financial benefits which would not be realized before five or more years have elapsed.

As was apparent in Table 5 the 19 trainees total gain in net income was $30,050 by the end of the second year after the course. An additional financial aspect of the course is the comparison of the $30,050 gain to the cost of the course. The total allocation for the course was $35,505. Assuming that all of the allocation was expended, there was an 84.6% recovery of the cost of the course by the end of the second year after the course and even if no more than the second year level of income increases continue through the third year more than 100% recovery of the cost of the course may be expected.

What Changes Took Place in the Trainee's Possession of Desirable Farming Behaviors After Taking the Course?

The trainee was asked during his interview to say whether or not he possessed each of several desirable farming behaviors before the course and

after the course. The interviewer explained to the interviewee that before the course meant about two years before the training and after the course meant up to the day of interview.

The first and second column of numbers in Table 6 show the number of trainees who possessed each desirable farming behavior before and after the course. Column 3 shows the percent of trainees who possessed each desirable farming behavior after taking the course. In addition, the fourth column shows the percent of those who could have and did acquire the desirable farming behavior after taking the course.

TABLE 6

THE NUMBER AND PERCENT OF TRAINEES WHO ACQUIRED EACH DESIRABLE FARMING BEHAVIOR

Desirable Farming Behaviors	Number of Trainees With Each Desirable Behavior		Percent of Trainees Who Acquired Each Desirable Behavior	Percent of Trainees Who Could Have and Did Acquire Each Desirable Behavior
	Before Course	After Course		
Is a member of a marketing cooperative	1	19	94.7	100.0
Has an orchard	2	16	73.6	82.3
Estimates value of trees . . .	0	13	68.4	66.7
Reclaims land	1	11	52.6	55.5
Improves livestock quarters. .	2	11	47.3	58.8
Practices undercropping . . .	0	8	42.1	42.1
Changes layout of the farm . .	2	9	36.8	41.1
Has soil tested	11	17	31.5	75.0
Practices contour plowing . .	10	17	31.5	75.0
Uses a farm record book . . .	4	10	31.5	40.0
Owns a tractor	10	15	26.3	55.5
Has new farm buildings	3	8	26.3	31.2
Has a silo	1	5	21.0	22.2
Has a cropping system	8	12	21.0	41.6
Has a telephone	3	7	21.0	25.0
Has a livestock system	8	12	21.0	36.3
Has yearly medical checkups .	6	10	21.0	30.7
Figures expected income . . .	4	8	21.0	26.7
Plans livestock feeding . . .	12	16	21.0	37.1
Plants hybrid seeds	15	19	21.0	100.0

- Continued -

TABLE 6.--Continued

Desirable Farming Behaviors	Number of Trainees With Each Desirable Behavior		Percent of Trainees Who Acquired Each Desirable Behavior	Percent of Trainees Who Could Have and Did Acquire Each Desirable Behavior
	Before Course	After Course		
Has a budget of farm expenses	4	8	21.0	26.6
Keeps a farm record book . . .	14	17	15.7	60.0
Prevents soil erosion	15	18	15.7	80.0
Has remodeled the house . . .	6	9	15.7	23.0
Uses insecticides	16	19	15.7	100.0
Practices crop rotation . . .	7	10	15.7	25.0
Asks for advice	8	11	15.7	27.2
Has all children in school . .	15	18	15.7	75.0
Plants cover crops	13	16	15.7	50.0
Has bought large appliances .	17	19	10.5	100.0
Has remodeled the farm buildings	5	7	10.5	14.2
Has a plan for servicing machinery	9	10	5.2	10.0
Rents additional land	6	9	5.2	41.6
Uses chemicals in silage . . .	0	1	5.2	5.2
Improves drainage of land . .	1	2	5.2	5.5
Uses commercial fertilizers .	17	18	5.2	50.0
Has machinery other than tractor	16	17	5.2	33.3
Is a full-time farmer	10	9	0.0	0.0
Has a budget of family expenses	5	5	0.0	0.0
Has part of farm in grassland.	18	18	0.0	0.0
Has part of soil in hay . . .	16	16	0.0	0.0
Owns car or truck	18	18	0.0	0.0
Has electricity in house . . .	19	19	0.0	0.0
Has crop irrigation system . .	0	0	0.0	0.0
Has part of income from woodland	9	7	0.0	0.0
Has part of farm in woodland .	17	16	0.0	0.0
Has all of farm in production.	9	4	0.0	0.0
Grows garden vegetables	19	19	0.0	0.0

The farming behaviors are rank ordered in Table 6 according to the percent of the trainees who acquired the behavior after taking the course. The desirable behaviors that were acquired by 50% or more of the trainees after taking the course suggest that the trainees were heavily oriented to

long-range planning during the course. A further analysis of the data was performed to ascertain the relationship of participation in desirable planning activities to differences in net income increases.

What is the Relationship of Adoption of Planning Activities to Differences in Net Income Increase?

Fourteen of the desirable farming behaviors were grouped together because they pertain to participation in planning activities. The trainees' net income increases after the course were rank ordered. The increases above the median were placed in Group I and the increases below the median were placed in Group II. The trainees' responses were tabulated to ascertain whether or not the trainee had adopted each desirable planning activity. The results are shown in Table 8 (see page 13).

The totals in the last row of Table 8 are expressed as percentages in Table 7. Differences in the frequencies of adoption of the planning behaviors upon which the percentages in Table 7 are based are statistically significant (x^2 = 7.35 at 1 d.f., probability less than .01).

TABLE 7

ADOPTION OF PLANNING ACTIVITIES

Income Increase Group	No Adoption After Course	Adoption After Course
Group I Above Median	37.5%	62.5%
Group II Below Median	59.4%	40.6%

As the above percentages indicate, the Farmer General trainees whose net income increases were above the median after the course, adopted a significantly larger number of desirable planning activities than did those trainees whose income increases were below the median.

TABLE 8

NUMBER OF TRAINEES WHO HAD NOT ADOPTED EACH PLANNING ACTIVITY BEFORE THE COURSE WHO DID AFTER THE COURSE AS RELATED TO DIFFERENCES IN NET INCOME INCREASE

Planning Activities	Total (No Adoption Before Course)	No Adoption After Course		Adoption After Course	
		Group I (Above Median Increase Group)	Group II (Below Median Increase Group)	Group I (Above Median Increase Group)	Group II (Below Median Increase Group)
Is a member of a marketing cooperative	17	0	0	8	9
Reclaims land	17	3	4	5	5
Changes layout of farmstead .	16	4	4	5	3
Budgets farm income	14	3	7	2	2
Figures expected income . . .	14	2	8	3	1
Uses farm record book when computing taxes	14	2	6	3	3
Has budget of family expenses	13	4	8	1	0
Keeps farm record book	12	2	5	1	4
Asks for advice	9	1	2	2	4
Has machinery winterizing plan	9	3	5	0	1
Has soil tested	8	0	1	4	3
Plans livestock system	7	0	3	2	2
Plans livestock feeding programs	7	0	3	2	2
Initiates soil conservation practices	3	0	1	2	0
Totals	160	24	57	40	39

What is the Relationship of Adoption of Farming Practices to Differences in Net Income Increase?

Twenty of the desirable farming behaviors were grouped together because they pertain to farming practices. The trainees' increases in net income after the course were rank ordered. The increases above the median were placed in Group I and the increases below the median were placed in Group II. The trainees' interview responses were tabulated to ascertain whether or not the trainee had adopted each desirable farming practice. The results are shown in Table 9.

TABLE 9

NUMBER OF TRAINEES WHO HAD NOT ADOPTED EACH FARMING PRACTICE BEFORE THE COURSE WHO DID AFTER THE COURSE AS RELATED TO DIFFERENCES IN NET INCOME INCREASE

Farming Practices	Total (No Adoption Before Course)	No Adoption After Course		Adoption After Course	
		Group I Above Median	Group II Below Median	Group I Above Median	Group II Below Median
Uses crop storage chemicals . .	18	8	9	1	0
Irrigates crops	18	9	9	0	0
Practices undercropping	18	3	7	6	2
Has an orchard	17	1	2	8	6
Has a silo	17	4	9	4	0
Improves livestock quarters	16	2	5	5	4
Has erected new farm buildings .	15	3	5	4	3
Has remodeled farm buildings . .	13	1	7	4	1
Has all of farm in production .	10	6	4	0	0
Practices contour plowing . . .	9	2	0	2	5
Owns a tractor	8	1	2	1	4
Plants cover crops	6	1	1	3	1
Plants hybrid seed	3	0	0	3	0
Owns farm machinery other than tractor	3	0	2	0	1
Uses insecticides	3	0	0	3	0
Uses fertilizers	2	0	1	1	0
Has part of land sown for hay. .	2	0	1	1	0
Has part of farm in woodland . .	1	0	1	0	0
Has part of farm in grass . . .	1	0	1	0	0
Grow vegetables	0	0	0	0	0
Totals .	180	41	66	46	27

The totals in the last row of Table 9 are expressed as percentages in Table 10. Differences in the frequencies of adoption of the farming practices, upon which the percentages in Table 10 are based, are statistically significant ($x = 12.2$ at 1 d.f., probability less than .005).

TABLE 10

ADOPTION OF FARMING PRACTICES

Income Increase Group	No Adoption After Course	Adoption After Course
Group I Above Median	47.1%	52.9%
Group II Below Median	71.0%	29.0%

As the above percentages indicate, the Farmer General trainees whose net income increases were above the median after the course, adopted a significantly larger number of desirable farming practices than did the trainees whose income increases were below the median.

What is the Relationship of Sources of Income to Differences in Net Income Increase?

Eleven desirable farming behaviors were grouped together because they pertain to sources of income. The trainees' interview responses were tabulated to find out whether or not the trainees had each source of income. In addition, the trainees' responses whose net incomes after the course were above the median, Group I, were contrasted to the trainees' responses whose net incomes were below the median, Group II. The results are shown in Table 11 (see page 16).

The totals in the last row of Table 11 are expressed as percentages in Table 12. Differences in frequencies of adoption of the sources of income, upon which the percentages in Table 12 are based, are not statistically significant ($x^2 = 0.11$ at 1 d.f., probability $>.50$).

TABLE 11

THE NUMBER OF TRAINEES WHO DID NOT ADOPT EACH SOURCE OF INCOME BEFORE THE COURSE WHO DID AFTER THE COURSE AS RELATED TO DIFFERENCES IN NET INCOME

Sources of Income	Total (No Adoption Before Course)	No Adoption of Source of Income After Course		Adoption of Source of Income After Course	
		Group I Above Median	Group II Below Median	Group I Above Median	Group II Below Median
Markets blackberries	18	9	6	0	3
Markets cucumbers	18	6	6	3	3
Markets raspberries	18	7	8	2	1
Markets strawberries	18	2	4	7	5
Rents or share crops additional land	12	3	4	3	2
Obtains part of income from woodland	10	6	4	0	0
Obtains all income from farm . .	8	4	2	1	1
Raises hogs for marketing . . .	8	2	3	3	0
Raises cattle for marketing . .	5	2	2	0	1
Grows corn for marketing	5	0	1	2	2
Grows tobacco for marketing . .	0	0	0	0	0
Totals .	120	41	40	21	18

TABLE 12

ADOPTION OF SOURCES OF INCOME

Income Increase Group	No Adoption of Source of Income After Course	Adoption of Source of Income After Course
Group I Above Median	64.5%	35.5%
Group II Below Median	67.8%	32.2%

As the above percentages indicate, the Farmer General trainees whose net income increases were above the median after the course did not have a significantly larger number of sources of income than did the trainees whose income increases were below the median.

What is the Relationship of the Effects on Other Farmers of Changes on the Trainee's Farm to Differences in Net Income Increase?

The Farmer General trainee was asked to state whether or not he had observed any effect on other farmers of the changes that he had made on his farm. In addition, if there were any observable effects, the trainee was asked to state what the effects were.

The effects that were mentioned by the trainees were listed and tabulations were made to ascertain whether or not at least one member of each of two income groups had noticed an effect. The results are shown in Table 13 (see page 18).

In addition to the information in Table 13, in no case did more than one member of Group II notice an effect on other farmers. On the other hand, the number of members of Group I who noticed an effect on other farmers ranged from one to four.

The totals in the last row of Table 13 are expressed as percentages in Table 14. Differences in observation of effects on other farmers, upon

TABLE 13

INCOME GROUP THAT OBSERVED EFFECTS OF CHANGES ON OTHER FARMERS

Effects on Other Farmers	No Effect Observed		Effect Observed	
	Group I (Above Median Income Increase)	Group II (Below Median Income Increase)	Group I (Above Median Income Increase)	Group II (Below Median Income Increase)
Building trench silo		X	X	
Growing cucumbers		X	X	
Growing strawberries		X	X	
Interest in blackberries	X			X
Interest in orchard	X			X
Interest in raspberries	X			X
Practicing strip cropping . . .		X	X	
Renovating pasture		X	X	
Spraying corn		X	X	
Using chemicals on silage . . .		X	X	
Using farrowing house		X	X	
Using fertilizers		X	X	
Using fungicides		X	X	
Using silage		X	X	
Totals . .	3	11	11	3

X = One or more trainees noticed changes in neighbor's interests, farming practices and source of income.

which the percentages in Table 14 are based, are statistically significant (x^2 = 10.4 at 1 d.f., probability $<.005$).

TABLE 14

EFFECTS ON OTHER FARMERS

Net Income Group	No Effect Observed	Effect Observed
Group I Above Median	21.4%	78.6%
Group II Below Median	78.6%	21.4%

As the above percentages indicate, the Farmer General trainees whose net income increases were above the median after the course noticed a significantly larger number of effects on other farmers than did the trainees whose net income increases were below the median.

What is the Relationship of Desire to Learn More About Farming in Classes With Other Farmers and Differences in Net Income Increase?

The Farmer General trainee was asked to state whether or not he would like to learn more about farming in classes with other farmers. In addition, the trainee was requested to give his idea as to when such classes should be held and how they should be taught.

One result was that all trainees with net income increases above the median and all trainees with net income increases below the median expressed an interest in learning more about farming in classes along with other farmers.

Another result was that the trainees tended to want classes that are interspersed throughout the year. In addition, they would like to have half-day classes which include demonstrations on other farms.

Discussion

The U. S. Department of Agriculture has produced a report that gives the nation a timely reminder that poor rural residents are still a major and persistent part of the poverty problem. This is true because approximately 46 percent of all families earning less than $3,000 live in rural areas. According to the Department, the nation must turn its attention to this part of the poverty problem.* Otherwise, the present annual migration of 300,000 poor rural residents to urban areas is likely to continue. The Department has stated that the poverty problem should be dealt with where it occurs because that will be less expensive.

The results of the present study show that MDTA Farmer General and Farm Hand General courses are good educational investments. The trainees were enabled to change their farming behavior and to increase their income. Though long-range benefits from the training will have to be determined by additional follow-up studies, the present study shows that the MDTA Farmer General trainees' incomes were still increasing during the second year after the termination of training. In addition, the study indicates that the cost of MDTA Farmer General courses is realizable within three years after the training.

That several of the MDTA trainees in the present study did not obtain incomes above $3,000 per year after the training is not as important an outcome as it would have been if the trainees had been living in a large city. The results of the study show that the Farmer General trainees produced food for their families which was not considered in computing their net income.

The results of the present study, therefore, suggest that a worth-

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*"Rural Poverty," Washington Post, November 21, 1967.

while approach to solution of the rural poverty problem is provision of MDTA agricultural education courses. If additional MDTA agricultural education courses are planned for small farm owners and operators, the results of this study and other similar studies should be carefully examined by course planners and implementers. Knowledge of the frequencies of desirable farming behaviors that the trainees possessed before and after training could provide guidance as to what to include in or to omit from future courses.

Data collection in the present study pertained to outcomes of three basic MDTA agricultural education courses and could not give direct evidence of the value of advanced or continued training. The study findings show, however, that the Farmer General trainees feel a need for more training. This finding could be the impetus for additional studies to ascertain whether or not advanced or continued training would enable the trainee to obtain a further increase in his income.

The increased demand for diversified farm products that was underscored recently by Governor Nunn is opportune for small farm owners and operators in Kentucky who are specializing in corn and tobacco and have an income of less than $1,200 per year. However, many lack the skills, attitudes, and knowledge that enable unskilled farmers and operators to become able to capitalize upon the opportunity. It is highly unlikely that small farm owners and operators with annual incomes of less than $1,200 per year are financially able to participate in agricultural education courses unless they receive financial assistance. The logical answer to the problem of the undiversified, unskilled. poverty-level small farm owners or operators appears to be MDTA courses that will enable them to profitably diversify their farming operations.

To summarize, four reasons were identified by the present study which support the provision of MDTA agricultural education courses that are directed toward the needs of the small farm owner and operator.

1. MDTA Farmer General and Farm Hand General courses are a good educational investment.

2. MDTA Farmer General and Farm Hand General courses will provide a direct solution to the rural poverty problem.

3. MDTA Farmer General and Farm Hand General courses will provide an indirect solution to the urban poverty problem.

4. MDTA Farmer General and Farm Hand General courses will make additions to the economy of Kentucky and supply the demands of a diversified farm market.